

Recent Papers by IBM Authors

Reprints of the papers listed here may usually be obtained by writing directly to the authors. The authors' IBM divisions or groups are identified as follows: CHQ is Corporate Headquarters; CPD, Communication Products Division; DSD, Data Systems Division; FED, Field Engineering Division; FSD, Federal Systems Division; GPD, General Products Division; GSD, General Systems Division; GTD, General Technology Division; IPD, Information Products Division; ISG, Information Systems Group; IS&CG, Information Systems & Communications Group; IS&TG, Information Systems & Technology Group; NAD, National Accounts Division; NMD, National Marketing Division; RES, Research Division; SPD, System Products Division; and SRI, Systems Research Institute.

● Papers are listed alphabetically by authors.

A

R. L. Adler, D. Coppersmith, and M. Hassner (RES Yorktown Hts., NY), **Algorithms for Sliding Block Codes, An Application of Symbolic Dynamics to Information Theory**, *IEEE Transactions on Information Theory* IT-29, No. 1, 5-22 (1983).

B. C. Antanaitis, P. Aisen (Albert Einstein College, Bronx, NY), and H. R. Lilienthal (RES Yorktown Hts., NY), **Physical Characterization of Two-Iron Uteroferrin, Evidence for a Spin-Coupled Binuclear Iron Cluster**, *Journal of Biological Chemistry* 258, No. 5, 3166-3172 (1983).

R. Arnold (GPD Tucson, AZ), **Bragg Angle Measurement**, *Electro-Optics* 15, No. 1, 29-30 (1983).

O. Auciello (University of Toronto, Ontario, Canada) and R. Kelly (RES Yorktown Hts., NY), **The Evolution of Pyramidal Structures on Surfaces Bombarded at Oblique Angles**, *Radiation Effects* 66, No. 3-4, 195-210 (1982).

M. Y. Azbel (RES Yorktown Hts., NY), **Resonance Tunneling and Localization Spectroscopy**, *Solid State Communications* 45, No. 7, 527-530 (1983).

B

P. S. Bagus (RES San Jose, CA), H. F. Schaefer III (University of California, Berkeley), and C. W. Bauschlicher, Jr. (Polyatomics Research Institute, Mountain View, CA), **The convergence of the cluster model for the study of chemisorption: Be_{3x}H** , *Journal of Chemical Physics* 78, No. 3, 1390-1395 (1983).

A. I. Baise (GTD East Fishkill, NY), **Study of the Curing of an Acetylene Terminated Polyphenylene Resin with Thermal Expansion Measurements**, *Journal of Polymer Science—Polymer Chemistry Edition* 21, No. 1, 67-71 (1983).

P. Banker (CHQ Armonk, NY), **You're the best judge of foreign risks**, *Harvard Business Review* 61, No. 2, 157-165 (1983).

J. A. Barker (RES San Jose, CA), **Vanderwaals Molecules and Condensed Phases**, *Faraday Discussions of the Chemical Society*, No. 73, 235-240 (1982).

E. Bassous (IS&TG White Plains, NY), L. M. Ephrath, G. Pepper, and D. J. Mikalsen (RES Yorktown Hts., NY), **A Three-Layer Resist System for Deep U.V. and RIE Microlithography on Nonplanar Surfaces**, *Journal of the Electrochemical Society* 130, No. 2, 478-484 (1983).

G. Bastard (Groupe de Physique des Solides de l'Ecole Normale Supérieure, Paris, France), E. E. Mendez, L. L. Chang, and L. Esaki (RES Yorktown Hts., NY), **Far Infrared Impurity Absorption in a Quantum Well**, *Solid State Communications* 45, No. 4, 367-369 (1983).

I. P. Batra (RES San Jose, CA) and O. Bisi (Università di Modena, Italy), **Electronic Structure Calculations for Atomic and Diatomic Phases of Oxygen Chemisorbed on Al(111)**, *Surface Science* 123, No. 2-3, 283-295 (1982).

C. W. Bauschlicher, Jr., S. P. Walch (Polyatomics Research Institute, Mountain View, CA), P. S. Bagus, and C. R. Brundle (RES San Jose, CA), **Comment on "Evidence for Two States of Chemisorbed Oxygen on Ni(100)"**, *Physical Review Letters* 50, No. 11, 864 (1983).

J. G. Bednorz, K. A. Müller (RES Zurich, Switzerland), H. Arend, and H. Gränicher (ETH-Hönggerberg, Zurich, Switzerland), **Phase Diagram of the $(\text{LaAlO}_3)_{1-x}(\text{SrTiO}_3)_x$ Solid-Solution System, for $x \leq 0.8$** , *Materials Research Bulletin* 18, No. 2, 181-187 (1983).

J. M. Beebe and R. K. Gilpin (IBM Instruments Inc., Danbury, CT), **Determination of α - and β -Lactose in Dairy Products by Totally Aqueous Liquid Chromatography**, *Analytica Chimica Acta* 146, 255-259 (1983).

A. E. Bell (RES San Jose, CA), **Optical Data Storage**, *Laser Focus* 19, No. 1, 37-38 (1983).

S. F. Bergeron and B. F. Duncan (GTD East Fishkill, NY), **Controlled Anisotropic Etching of Polysilicon**, *Solid State Technology* 25, No. 8, 98-103 (1982).

B. S. Berry and W. C. Pritchett (RES Yorktown Hts., NY), **Extended capabilities of a vibrating-reed internal friction apparatus**, *Review of Scientific Instruments* 54, No. 2, 254-256 (1983).

R. Bhaskar (SCD Kingston, NY), J. F. Dillard, and R. G. Stephens (Ohio State University, Columbus), **Skill Acquisition in Bookkeeping Tasks**, *Instructional Science* 11, No. 4, 329-356 (1983).

L. B. Bhuiyan, L. Blum (University of Puerto Rico, Rio Piedras), and D. Henderson (RES San Jose, CA), **The application of the modified Gouy-Chapman theory to an electrical double layer containing asymmetric ions**, *Journal of Chemical Physics* 78, No. 1, 442-445 (1983).

B. Bhushan, S. Gray, and R. W. Graham (GPD Tucson, AZ), **Development of Low Friction Elastomers for Bearings and Seals**, *Lubrication Engineering* 38, No. 10, 626-634 (1982).

K. W. Blazey, T. L. Estle (RES Zurich, Switzerland), E. Holzschuh, W. Odermatt, and B. D. Patterson (Universität Zurich, Switzerland), **Temperature dependence of the hyperfine parameters of anomalous muonium in germanium**, *Physical Review B* 27, No. 1, 15-19 (1983).

H. Boehm (IBM Germany, Stuttgart), **Adaptive Control to a Dry Etch Process by Microcomputer**, *Automatica* **18**, No. 6, 665-673 (1982).

A. A. Bright, J. H. Greiner, S. P. Klepner, R. H. Wang, and A. J. Warnecke (RES Yorktown Hts., NY), **Thin film fabrication for the Josephson technology cross-sectional model**, *Journal of Vacuum Science and Technology B* **1**, No. 1, 77-90 (1983).

R. Bruinsma, P. Bak (Brookhaven National Laboratory, Upton, NY), and J. M. Torraine (RES San Jose, CA), **Neutral-ionic transitions in organic mixed-stack compounds**, *Physical Review B* **27**, No. 1, 456-466 (1983).

W. H. Burge (RES Yorktown Hts., NY), **A Symmetrical Plane Partition Correspondence**, *Advances in Mathematics* **46**, No. 3, 280-283 (1982).

C

P. Carnevali (RES Yorktown Hts., NY), **The Long Term Evolution of Rotating Stellar Bars**, *Astrophysical Journal* **265**, No. 2, Part I, 701-710 (1983).

F. Casula and F. Herman (RES San Jose, CA), **Generalized muffin-tin orbitals for electronic structure studies of surfaces, interfaces, and organic solids**, *Journal of Chemical Physics* **78**, No. 2, 858-875 (1983).

C. A. Chang and W. K. Chu (RES Yorktown Hts., NY), **Channeling studies of Ge-GaAs super lattices grown by molecular beam epitaxy**, *Applied Physics Letters* **42**, No. 5, 463-465 (1983).

K. C. Chang, C. K. Chew, T. Y. Liang, K. K. Phua (National University of Singapore), and H. B. Low (IBM Singapore, Singapore), **Mathematical properties and asymptotic expansion of the generalized quark statistical function**, *Journal of Mathematical Physics* **24**, No. 1, 173-176 (1983).

T. I. Chappell (RES Yorktown Hts., NY), P. W. Chye (Avantek Inc., Santa Clara, CA), and M. A. Tavel (Vassar College, Poughkeepsie, NY), **Determination of the Oxygen Precipitate-Free Zone Width in Silicon Wafers from Surface Photovoltage Measurements**, *Solid-State Electronics* **26**, No. 1, 33-36 (1983).

T. J. Chuang (RES San Jose, CA), **Laser-enhanced gas-surface chemistry: Basic processes and applications**, *Journal of Vacuum Science and Technology* **21**, No. 3, 798-806 (1982).

R. K. Cook (GTD East Fishkill, NY), **Computer simulation of carrier transport in planar doped barrier diodes**, *Applied Physics Letters* **42**, No. 5, 439-441 (1983).

E. Courtens (RES Zurich, Switzerland), **Low-Frequency Raman Spectra of Paraelectric KH_2PO_4** , *Solid State Communications* **45**, No. 6, 479-480 (1983).

A. Cros, R. A. Pollak, and K. N. Tu (RES Yorktown Hts., NY), **Interaction between chromium oxide and chromium silicide**, *Journal of Applied Physics* **54**, No. 1, 258-259 (1983).

D

F. d'Heurle (RES Yorktown Hts., NY), E. A. Irene (University of North Carolina, Chapel Hill), and C. Y. Ting (RES Yorktown Hts., NY), **Oxidation of silicide thin films: TiSi_2** , *Applied Physics Letters* **42**, No. 4, 361-363 (1983).

P. de Souza (RES Yorktown Hts., NY), **A Note on a Random Walk Model for Texture Analysis**, *Pattern Recognition* **16**, No. 2, 219-222 (1983).

P. de Souza (RES Yorktown Hts., NY), **Texture Recognition Via Autoregression**, *Pattern Recognition* **15**, No. 6, 471-475 (1982).

J. E. Demuth, Ph. Avouris, and S. Schmeisser (RES Yorktown Hts., NY), **Nature of the Excited States of Rare-Gas Atoms Adsorbed on Metal Surfaces**, *Physical Review Letters* **50**, No. 8, 600-603 (1983).

A. F. Diaz, U. T. Mueller-Westerhoff, A. Nazzari, and M. Tanner (RES San Jose, CA), **The Electrochemistry of [1.1]Metallocenophanes: A Cyclic Voltammetry Study of Homo-Binuclear and Hetero-Binuclear Systems**, *Journal of Organometallic Chemistry* **236**, No. 2, C45-C48 (1982).

W. P. Dumke (RES Yorktown Hts., NY), **Comparison of band-gap shrinkage observed in luminescence from n^+ -Si with that from transport and optical absorption measurement**, *Applied Physics Letters* **42**, No. 2, 196-198 (1983).

E

L. M. Ephraïm (GTD East Fishkill, NY), **Etching Needs for VLSI**, *Solid State Technology* **25**, No. 7, 87-92 (1982).

F

R. Fagin (RES San Jose, CA), **Horn Clauses and Database Dependencies**, *Journal of the Association for Computing Machinery* **29**, No. 4, 952-985 (1982).

Th. Fauster, F. J. Himpsel, J. J. Donelon, and A. Marx (RES Yorktown Hts., NY), **Spectrometer for momentum-resolved bremsstrahlung spectroscopy**, *Review of Scientific Instruments* **54**, No. 1, 68-75 (1983).

O. G. Folberth (IBM Germany, Boeblingen), **The Special Issue on VLSI Design—Problems and Tools**, *Proceedings of the IEEE* **71**, No. 1, 3-4 (1983).

S. Fortune (RES Yorktown Hts., NY), D. Leivant (Cornell University, Ithaca, NY), and M. O'Donnell (Purdue University, West Lafayette, IN), **The Expressiveness of Simple and Second Order Type Structures**, *Journal of the Association for Computing Machinery* **30**, No. 1, 151-185 (1983).

T. Furukawa, N. K. Eib, K. L. Mittal, and H. R. Anderson, Jr. (GTD East Fishkill, NY), **Inelastic Electron Tunneling Spectroscopic Study of the Silane Coupling Agents 1—Aminophenyltrimethoxysilane Adsorbed on Plasma Grown Aluminum Oxide and Effects of High Humidity**, *Surface and Interface Analysis* **4**, No. 6, 240-244 (1982).

G

N. Garcia, J. A. Barker (RES San Jose, CA), and K. H. Rieder (RES Zurich, Switzerland), **Importance of the Polarization Forces in He-Metal Surface Interaction Potential**, *Solid State Communications* **45**, No. 7, 567–570 (1983).

C. D. Gelatt, Jr., A. R. Williams, and V. L. Moruzzi (RES Yorktown Hts., NY), **Theory of bonding of transition metals to nontransition metals**, *Physical Review B* **27**, No. 4, 2005–2013 (1983).

M. Gershman (University of Maine, Orono) and G. Markowsky (RES Yorktown Hts., NY), **Reduced Set of Phages for Typing Salmonellae**, *Journal of Clinical Microbiology* **17**, No. 2, 240–244 (1983).

E. A. Giess, C. F. Guerci, J. D. Kuptsis, I. F. Chang, and D. J. Robbins (RES Yorktown Hts., NY), **Zn₂SiO₄ Crystal Growth from Molten Solutions Fluxed with Pb₂ZnSi₂O₇ and Fluorides**, *Journal of Crystal Growth* **60**, No. 2, 219–224 (1982).

M. L. Gillenson (SRI New York, NY), **The State of Practice of Data Administration—1981**, *Communications of the ACM* **25**, No. 10, 699–706 (1982).

R. F. Glynjones (IBM United Kingdom, Winchester), **New Office Systems Technology**, *ASLIB Proceedings* **35**, No. 1, 31–37 (1983).

P. M. Grant (RES San Jose, CA), **Band-structure parameters of a series of tetramethyltetraselenafulvalene (TMTSF)₂X compounds**, *Physical Review B* **26**, No. 12, 6888–6895 (1982).

M. C. Gutzwiller (RES Yorktown Hts., NY), **The Quantization of a Classically Ergodic Systems**, *Physica* **5D**, No. 2–3, 183–207 (1982).

H

B. H. Haas (CHQ Armonk, NY), **Industrial Hygiene Audits**, *American Industrial Hygiene Association Journal* **43**, No. 12, 867–873 (1982).

J. M. E. Harper, J. J. Cuomo (RES Yorktown Hts., NY), and H. R. Kaufman (Colorado State University, Ft. Collins), **Technology and applications of broad-beam ion sources used in sputtering. Part II. Applications**, *Journal of Vacuum Science and Technology* **21**, No. 3, 737–756 (1982).

P. Heidelberg and K. S. Trivedi (RES Yorktown Hts., NY), **Analytic Queuing Models for Programs with Internal Concurrency**, *IEEE Transactions on Computers* **C-32**, No. 1, 73–82 (1983).

P. Heidelberger and K. S. Trivedi (RES Yorktown Hts., NY), **Queuing Network Models for Parallel Processing with Asynchronous Tasks**, *IEEE Transactions on Computers* **C-31**, No. 11, 1099–1109 (1982).

G. H. Hewig and K. Jain (RES San Jose, CA), **Frequency doubling in a LiNbO₃ thin film deposited on sapphire**, *Journal of Applied Physics* **54**, No. 1, 57–61 (1983).

F. J. Himpsel (RES Yorktown Hts., NY), **Angular Dependence of Photon-Simulated Desorption**, *Semiconductors and Insulators* **5**, No. 3–4, 419–430 (1983).

R. B. Hitchcock, Sr. (GTD Endicott, NY) and N. S. Goel (State University of New York, Binghamton), **Analysis of Cooperative Failures in Digital Computers, II—Applications of the Hierarchical Pre-Charging Algorithm to Some Specific Examples**, *Journal of Digital Systems* **6**, No. 4, 333–343 (1982).

G. Hollinger, F. J. Himpsel, B. Reihl (RES Yorktown Hts., NY), P. Pertosa (Institut de Physique Nucléaire, Villeurbanne, France), and J. P. Doumerc (Université Bordeaux I, Talence, France), **On the Applicability of the Rigid Band Model to the Metallic Sodium Tungsten Bronzes: A Photoemission Study Using Synchrotron Radiation**, *Solid State Communications* **44**, No. 8, 1221–1225 (1982).

S. J. Hong and R. Nair (RES Yorktown Hts., NY), **Wire Routing Machines—New Tools for VLSI Physical Design**, *Proceedings of the IEEE* **71**, No. 1, 57–65 (1983).

J. Horkans (RES Yorktown Hts., NY), **A Cyclic Voltammetric Study of Pd-Sn Colloidal Catalysts for Electroless Deposition**, *Journal of the Electrochemical Society* **130**, No. 2, 311–317 (1983).

F. A. Houle (RES San Jose, CA), **Non-Thermal Effects in Laser Enhanced Etching of Silicon by XeF₂**, *Chemical Physics Letters* **95**, No. 1, 5–8 (1983).

J. E. Hurst, L. Wharton (University of Chicago, IL), K. C. Janda (California Institute of Technology, Pasadena), and D. J. Auerbach (RES San Jose, CA), **Direct inelastic scattering Ar from Pt(111)**, *Journal of Chemical Physics* **78**, No. 3, 1559–1581 (1983).

J

C. S. Jacobsen (Technical University of Denmark, Lyngby) and J. B. Torrance (RES San Jose, CA), **Behavior of charge-transfer absorption upon passing through the neutral-ionic phase transition**, *Journal of Chemical Physics* **78**, No. 1, 112–115 (1983).

H. R. Jauslin and T. Schneider (RES Zurich, Switzerland), **Solitons and the excitation spectrum of classical ferromagnetic chains with axial anisotropy**, *Physical Review B* **26**, No. 9, 5153–5167 (1982).

C. R. Jones, B. J. Allman, A. Mooring, and B. Spahic (RES San Jose, CA), **Photosensitized [4 + 2] Cycloaddition of 1,3-Cyclohexadiene**, *Journal of the American Chemical Society* **105**, No. 3, 652–654 (1983).

K

M. J. Kallok (Medtronic Inc., Minneapolis, MN), S. J. Lai-Fook (Mayo Foundation, Rochester, MN), M. A. Hajji (SPD Rochester, MN), and T. A. Wilson (University of Minnesota, Minneapolis), **Axial distortion of airways in the lung**, *Journal of Applied Physiology—Respiratory Environmental and Exercise Physiology* **54**, No. 1, 185–190 (1983).

J. A. Kash, J. H. Collet, D. J. Wolford (RES Yorktown Hts., NY), and J. Thompson (Hewlett-Packard Company, Palo Alto, CA), **Luminescence decays of N-bound excitons in GaAs_{1-x}P_x**, *Physical Review B* **27**, No. 4, 2294–2300 (1983).

H. R. Kaufman (Colorado State University, Ft. Collins), J. J. Cuomo, and J. M. E. Harper (RES Yorktown Hts., NY), **Technology and applications of broad-beam ion sources used in sputtering. Part I. Ion source technology**, *Journal of Vacuum Science and Technology* **21**, No. 3, 725-736 (1982).

H. R. Kaufman (Colorado State University, Ft. Collins), J. M. E. Harper, and J. J. Cuomo (RES Yorktown Hts., NY), **Developments in broad-beam, ion source technology and applications**, *Journal of Vacuum Science and Technology* **21**, No. 3, 764-767 (1982).

R. Kelly (RES Yorktown Hts., NY), **Factors determining the compound phases formed by oxygen or nitrogen implantation in metals**, *Journal of Vacuum Science and Technology* **21**, No. 3, 778-789 (1982).

R. Kelly, S. A. Shivashankar, and J. J. Cuomo (RES Yorktown Hts., NY), **Plasma analysis based on newly found similarities in the relative populations of excited states produced by sputtering and by electron impact**, *Journal of Vacuum Science and Technology* **21**, No. 3, 774-777 (1982).

J. I. Kim (RES Yorktown Hts., NY), C. K. Syn (Kennametal Inc., Greensburg, PA), and J. W. Morris, Jr. (University of California, Berkeley), **Microstructural Sources of Toughness in QLT-Treated 5.5Ni Cryogenic Steel**, *Metallurgical Transactions A* **14**, No. 1, 93-103 (1983).

E. -A. Knabbe, J. W. Coburn, and E. Kay (RES San Jose, CA), **A SIMS Study of Ion-Assisted Etching Mechanisms; Adsorbed Fluorine on Si Removed by Ion Bombardment**, *Surface Science* **123**, No. 2-3, 427-438 (1982).

S. H. Koenig, R. D. Brown III (RES Yorktown Hts., NY), I. Bertini, and C. Luchinat (University of Florence, Italy), **Water Exchange at the Active Site of Carbonic Anhydrase, A Synthesis of the OH- and H₂O-Models**, *Biophysical Journal* **41**, No. 2, 179-187 (1983).

L. Krusin-Elbaum, A. P. Malozemoff, and R. C. Taylor (RES Yorktown Hts., NY), **Disorder-induced spin-glass state in amorphous Heusler alloys**, *Physical Review B* **27**, No. 1, 562-565 (1983).

L

G. Landgren (Institute of Microwave Technology, Stockholm, Sweden), R. Ludeke, and C. Serrano, **Epitaxial Al Films on GaAs(100) Surfaces**, *Journal of Crystal Growth* **60**, No. 2, 393-402 (1982).

N. D. Lang (RES Yorktown Hts., NY), **Ionization probability of sputtered atoms**, *Physical Review B* **27**, No. 4, 2019-2029 (1983).

D. T. Lee (Northwestern University, Evanston, IL), C. L. Liu (University of Illinois, Urbana), and C. K. Wong (RES Yorktown Hts., NY), **(g₀, g₁, ..., g_k)-Trees and Unary OL Systems**, *Theoretical Computer Science* **22**, No. 1-2, 209-217 (1983).

V. Y. Lee, E. M. Engler, R. R. Schumaker, and S. S. P. Parkin (RES San Jose, CA), **Bis(ethylenediseleno)Tetraselenafulvalene (BEDSe-TSeF)**, *Journal of the Chemical Society, Chemical Communications*, No. 5, 235-236 (1983).

W. J. Leigh and R. Srinivasan (RES Yorktown Hts., NY), **Organic Photochemistry with 6.7-eV Photons: The Photochemistry of Bicyclo[4.1.0]Hept-2-ene (2-Norcarene)**, *Journal of the American Chemical Society* **105**, No. 3, 514-519 (1983).

A. Lempel, G. Seroussi (Technion-Israel Institute of Technology, Haifa) and S. Winograd (RES Yorktown Hts., NY), **On the Complexity of Multiplication in Finite Fields**, *Theoretical Computer Science* **22**, No. 3, 285-296 (1983).

M. D. Levenson, W. E. Moerner, and D. E. Horne (RES San Jose, CA), **FM spectroscopy detection of stimulated Raman gain**, *Optics Letters* **8**, No. 2, 108-110 (1983).

M

M. Maglietta, E. Zanazzi, U. Bardi (Università di Firenze, Florence, Italy), D. Sondericker, F. Jona (State University of New York), and P. M. Marcus (RES Yorktown Hts., NY), **LEED Structure Analysis of a $\sqrt{3} \times \sqrt{3} - 30^\circ$ Overlayer of Iodine on Ag[111]**, *Surface Science* **123**, No. 1, 141-151 (1982).

J. Martinsen (Northwestern University, Evanston, IL), R. L. Greene (RES San Jose, CA), S. M. Palmer, and B. M. Hoffman (Northwestern University, Evanston, IL), **Low-Temperature Metallic Conductivity in a Metallomacroscopic Crystal: Nickel Phthalocyanine Iodide**, *Journal of the American Chemical Society* **105**, No. 3, 677-678 (1983).

F. Mehran (RES Yorktown Hts., NY), K. W. H. Stevens (University of Nottingham, Great Britain), T. S. Plaskett, and W. J. Fitzpatrick (RES Yorktown Hts., NY), **Slowly fluctuating random strains in the excited-state Jahn-Teller system TmPO₄**, *Physical Review B* **27**, No. 1, 548-550 (1983).

P. Melli (IBM Italy, Rome Scientific Center), **Air Quality Mathematical Modeling in the Presence of Strong Point Emissions**, *Rivista di Meteorologia Aeronautica* **42**, No. 2-3, 185-199 (1982).

E. E. Mendez, G. Bastard, L. L. Chang, L. Esaki (RES Yorktown Hts., NY), H. Morkoc, and R. Fischer (University of Illinois, Urbana-Champaign), **Effect of an electric field on the luminescence of GaAs quantum wells**, *Physical Review B* **26**, No. 12, 7101-7104 (1982).

J. Michl, G. J. Radziszewski, J. W. Downing (University of Utah, Salt Lake City), K. B. Wiberg, F. H. Walker (Yale University, New Haven, CT), R. D. Miller (RES San Jose, CA), P. Kovacic, M. Jawdoskiuk (University of Wisconsin, Milwaukee), and V. Bonačić-Koutecký (Freie Universität Berlin, Federal Republic of Germany), **Highly Strained Single and Double Bonds**, *Pure and Applied Chemistry* **55**, No. 2, 315-321 (1983).

R. F. Miracky, J. Clarke (University of California, Berkeley), and R. H. Koch (RES Yorktown Hts., NY), **Chaotic Noise Observed in a Resistively Shunted Self-Resonant Josephson Tunnel Junction**, *Physical Review Letters* **50**, No. 11, 856-869 (1983).

P. M. Mooney (RES Yorktown Hts., NY), **Photo-deep level transient spectroscopy: A technique to study deep levels in heavily compensated semiconductors**, *Journal of Applied Physics* **54**, No. 1, 208-213 (1983).

V. L. Moruzzi, P. Oelhafen, A. R. Williams (RES Yorktown Hts., NY), R. Lapka, H. -J. Güntherout (University of Basel, Switzerland), and J. Kubler (Technische Hochschule, Darmstadt, Federal Republic of Germany), **Theoretical and experimental electronic structure of Zr-base transition-metal glasses containing Fe, Co, Ni, Cu, Rh, and Pd**, *Physical Review B* **27**, No. 4, 2049-2054 (1983).

P. A. Moskowitz (RES Yorktown Hts., NY), **Extension of Magnetic Anomaly Rule**, *Physics Letters* **118B**, No. 1-3, 29-32 (1982).

P. A. Moskowitz (RES Yorktown Hts., NY), R. W. Guernsey, J. W. Stasiak (GTD East Fishkill, NY), and E. B. Flint (RES Yorktown Hts., NY), **Superconducting electronics testing**, *Cryogenics* **23**, No. 2, 107-109 (1983).

G. Mozurkewich (University of California, Los Angeles) and R. L. Melcher (RES Yorktown Hts., NY), **Enhanced backward-wave generation in silicon**, *Physical Review B* **26**, No. 10, 5645-5649 (1982).

U. T. Mueller-Westerhoff, A. Nazzari, and M. Tanner (RES San Jose, CA), **[1.1]Metallophenanes of Iron and Ruthenium: Synthesis and Characterization of Homo-Binuclear and Hetero-Binuclear Systems**, *Journal of Organometallic Chemistry* **236**, No. 2, C41-C44 (1982).

N

L. M. Ni (Michigan State University, East Lansing), K. Y. Wong (RES San Jose, CA), D. T. Lee (The Chinese University of Hong Kong, Schatin), and R. K. Poon (Hewlett-Packard Laboratory, Palo Alto, CA), **A Microprocessor-Based Office Processing System**, *IEEE Transactions on Computers* **C-31**, No. 10, 1017-1022 (1982).

O

P. Oelhafen and J. L. Freeouf (RES Yorktown Hts., NY), **Accurate spectrometer calibration in electron spectroscopy**, *Journal of Vacuum Science and Technology A* **1**, No. 1, 96-97 (1983).

P. Oelhafen, V. L. Moruzzi, A. R. Williams, D. S. Yee, J. J. Cuomo (RES Yorktown Hts., NY), U. Gubler, G. Indlekof, and H. -J. Güntherodt (Universität Basel, Switzerland), **Electronic Structure of Amorphous Zr Based Alloys with V, Cr and Mn Studied by Photoelectron Spectroscopy and Bandstructure Calculations**, *Solid State Communications* **44**, No. 12, 1551-1555 (1982).

P. Oelhafen (Universität Basel, Switzerland), M. P. Vecchi (IVIC, Caracas, Venezuela), J. L. Freeouf, and V. L. Moruzzi (RES Yorktown Hts., NY), **The Delocalized d-Electrons in the Semimagnetic Alloy $Cd_{1-x}Mn_xTe$** , *Solid State Communications* **44**, No. 12, 1547-1550 (1982).

E. L. Ortiz (Imperial College of Science and Technology, London, England) and T. J. Rivlin (RES Yorktown Hts., NY), **Another Look at the Chebyshev Polynomials**, *American Mathematical Monthly* **90**, No. 1, 3-10 (1983).

P

J. Pacansky and B. Schrader (RES San Jose, CA), **Calculation of the frequencies and intensities in the infrared spectrum of the ethyl radical**, *Journal of Chemical Physics* **78**, No. 3, 1033-1038 (1983).

S. S. P. Parkin, E. M. Engler, R. R. Schumaker, R. Lagier, V. Y. Lee, J. C. Scott, and R. L. Greene (RES San Jose, CA), **Superconductivity in a New Family of Organic Conductors**, *Physical Review Letters* **50**, No. 4, 270-273 (1983).

T. Penney, B. Barbara (CNRS, Grenoble, France), T. S. Plaskett, H. E. King, Jr. (Exxon Corporation Research, Linden, NJ), and S. J. LaPlaca (RES Yorktown Hts., NY), **Elastic Properties of Intermediate Valence, Kondo and Stable Valence RAI_2 Compounds**, *Solid State Communications* **44**, No. 8, 1199-1204 (1982).

R. B. Primerz (RES San Jose, CA), **Relationships Between Toner Properties, Fuser Parameters, and Fixing of Electrophotographic Images**, *Photographic Science and Engineering* **27**, No. 1, 19-25 (1983).

Q

J. J. Quinn (Brown University, Providence, RI), U. Strom (Naval Research Laboratory, Washington, DC), and L. L. Chang (RES Yorktown Hts., NY), **Direct Electromagnetic Generation of High Frequency Acoustic Waves in Semiconductor Superlattices**, *Solid State Communications* **45**, No. 2, 111-112 (1983).

R

J. F. Rabolt, F. C. Burns, N. E. Schlotter, and J. D. Swalen (RES San Jose, CA), **Anisotropic orientation in molecular monolayers by infrared spectroscopy**, *Journal of Chemical Physics* **78**, No. 2, 946-952 (1983).

J. F. Rabolt, N. E. Schlotter, J. D. Swalen, and R. Santo (RES San Jose, CA), **Comparative Raman Studies of Molecular Interactions at a Dye Polymer and a Dye Glass Interface**, *Journal of Polymer Science—Polymer Chemistry Edition* **21**, No. 1, 1-9 (1983).

B. Reihl and F. J. Himpsel (RES Yorktown Hts., NY), **Photoemission of Spin-Polarized d-States in Gadolinium**, *Solid State Communications* **44**, No. 8, 1131-1132 (1982).

K. H. Rieder (RES Zurich, Switzerland), **Determination of Surface Structures Using He-Diffraction**, *Physica Scripta* **T1**, 93-96 (1982).

R. A. Rinne and D. R. Barbour (GTD East Fishkill, NY), **Multi-Chip Module Technology**, *Electrocomponent Science and Technology* **10**, No. 1, 31-49 (1982).

M. Ronay (RES Yorktown Hts., NY) and E. E. Latta (RES Zurich, Switzerland), **Interaction of niobium counter electrodes with aluminum oxide and rare earth oxide tunnel barriers**, *Physical Review B* **27**, No. 3, 1605-1609 (1983).

A. E. Ruehli and G. S. Ditlow (RES Yorktown Hts., NY), **Circuit Analysis, Logic Simulation, and Design Verification for VLSI**, *Proceedings of the IEEE* **71**, No. 1, 34-48 (1983).

S

I. L. Sanders (RES San Jose, CA), **NiFeCO—An Alternative to Permalloy for Bubble Domain Detection?**, *IEEE Transactions on Magnetics* **MAG-19**, No. 2, 104-110 (1983).

D. D. Saperstein (IBM Instruments, Inc., San Jose, CA), **Resolution Limit of an IR Interferometer**, *Applied Spectroscopy* 37, No. 1, 44-46 (1983).

R. P. Saxon (SRI Institute, Menlo Park, CA), B. H. Lengsfeld III, and B. Liu (RES San Jose, CA), **Theoretical study of NH_2 : Potential curves, transition moments, and photodissociation cross sections**, *Journal of Chemical Physics* 78, No. 1, 312-320 (1983).

R. P. Saxon (SRI International, Menlo Park, CA) and B. Liu (RES San Jose, CA), **Ab initio potential curve for the $b^3 - \Sigma^-$ state of CH^+** , *Journal of Chemical Physics* 78, No. 3, 1344-1347 (1983).

D. Schmeisser, J. E. Demuth, and Ph. Avouris (RES Yorktown Hts., NY), **Electron-energy-loss studies of physisorbed O_2 and N_2 on Ag and Cu surfaces**, *Physical Review B* 26, No. 9, 4857-4863 (1982).

U. Schmitt and D. M. Burland (RES San Jose, CA), **Use of Holography to Investigate Photochemical Reactions from Higher Excited States. Action Spectrum of the Second-Photon Step in the Two-Photon Dissociation Reaction of Carbazole**, *Journal of Physical Chemistry* 87, No. 5, 720-723 (1983).

T. Schneider and H. R. Jauslin (RES Zurich, Switzerland), **Spin dynamics of the ferromagnetic Heisenberg chain in a magnetic field: Evidence for "second magnons"**, *Physical Review B* 27, No. 3, 1919-1921 (1983).

K. W. Schwarz (RES Yorktown Hts., NY), **Critical Velocity for a Self-Sustaining Vortex Tangle in Superfluid Helium**, *Physical Review Letters* 50, No. 5, 364-367 (1983).

T. O. Sedgwick (RES Yorktown Hts., NY), **Short Time Annealing**, *Journal of the Electrochemical Society* 130, No. 2, 484-493 (1983).

A. Segall (RES Yorktown Hts., NY), **Distributed Network Protocols**, *IEEE Transactions on Information Theory* IT-29, No. 1, 23-35 (1983).

R. M. Shelby (RES San Jose, CA), **Measurement of optical homogeneous linewidths in a glass with picosecond accumulated photon echoes**, *Optics Letters* 8, No. 2, 88-90 (1983).

N. S. Shiren, Y. Tomkiewicz, T. G. Kazyaka, A. R. Taranko (RES Yorktown Hts., NY), H. Thomann, L. Dalton (State University of New York, Stony Brook), and T. C. Clarke (RES San Jose, CA), **Spin Dynamics in Trans-Polyacetylene**, *Solid State Communications* 44, No. 8, 1157-1160 (1982).

P. E. M. Siegbahn (University of Stockholm, Sweden), M. Yoshimine, and J. Pacansky (RES San Jose, CA), **A theoretical study of the lowest singlet and triplet surfaces of $\text{C}_2\text{H}_2\text{S}$** , *Journal of Chemical Physics* 78, No. 3, 1384-1389 (1983).

B. Simpson (IBM United Kingdom, Greenford, England), **Heading for the Ha-Ha**, *British Journal of Educational Technology* 14, No. 1, 19-26 (1983).

J. L. Speidell, J. M. E. Harper, J. J. Cuomo, A. W. Kleinsasser, H. R. Kaufman, and A. H. Tuttle (RES Yorktown Hts., NY), **The fabrication and use of silicon and gallium arsenide ion source extraction grids**, *Journal of Vacuum Science and Technology* 21, No. 3, 824-827 (1982).

H. R. Strong (RES San Jose, CA), **Vector Execution of Flow Graphs**, *Journal of the Association for Computing Machinery* 30, No. 1, 186-196 (1983).

R. H. Swendsen (RES Zurich, Switzerland), **Monte Carlo renormalization-group study of the $d = 3$ planar model**, *Physical Review B* 27, No. 1, 391-400 (1983).

T

A. C. Tam (RES San Jose, CA), **Spatial Dependence of the Strong Optogalvanic Effects Due to Metastable Quenching in a DC Helium Discharge**, *IEEE Transactions on Plasma Science* PS-10, No. 4, 252-256 (1982).

T. Y. Tan and B. J. Ginsberg (RES Yorktown Hts., NY), **Observation of oxidation enhanced and oxidation retarded diffusion of antimony in silicon**, *Applied Physics Letters* 42, No. 5, 448-450 (1983).

M.-C. Tang (RES San Jose, CA), M. Hsu (KLA Instruments, Santa Clara, CA), and S. Kobayashi (University of California, Berkeley), **Analysis of Shell Nosing—Process Mechanics and Preform Design**, *International Journal of Machine Tool Design and Research* 22, No. 4, 293-307 (1982).

M.-C. Tang (GPD San Jose, CA) and S. Kobayashi (University of California, Berkeley), **An Investigation of the Shell Nosing Process by the Finite-Element Method. Part 1: Nosing at Room Temperature (Cold Nosing)**, *Journal of Engineering for Industry* 104, No. 3, 305-311 (1982).

M.-C. Tang (GPD San Jose, CA) and S. Kobayashi (University of California, Berkeley), **An Investigation of the Shell Nosing Process by the Finite Element Method. Part 2: Nosing at Elevated Temperatures (Hot Nosing)**, *Journal of Engineering for Industry* 104, No. 3, 312-318 (1982).

T. N. Theis, J. R. Kirtley, D. J. DiMaria, and D. W. Dong (RES Yorktown Hts., NY), **Light Emission from Electron Injector Structures**, *Physical Review Letters* 50, No. 10, 750-754 (1983).

H. Thomann, L. R. Dalton (University of Southern California, Los Angeles), Y. Tomkiewicz, N. S. Shiren (RES Yorktown Hts., NY), and T. C. Clarke (RES San Jose, CA), **Electron-Nuclear Double-Resonance Determination of the ^{13}C and ^2H Hyperfine Tensors for Polyacetylene**, *Physical Review Letters* 50, No. 7, 533-536 (1983).

R. D. Traub (RES Yorktown Hts., NY), **Cellular Mechanisms Underlying the Inhibitory Surround of Penicillin Epileptogenic FOCI**, *Brain Research* 261, No. 2, 277-284 (1983).

R. D. Traub (RES Yorktown Hts., NY) and R. K. S. Wong (University of Texas, Galveston), **Synchronized Burst Discharge in Disinhibited Hippocampal Slice. II. Model of Cellular Mechanism**, *Journal of Neurophysiology* 49, No. 2, 459-471 (1983).

U

M. J. Uren, T. N. Theis, and F. F. Fang (RES Yorktown Hts., NY), **Intersubband Resonances in SOSMOS Accumulation Layers**, *Solid State Communications* 45, No. 7, 581-583 (1983).

V

J. J. van der Klink, D. Rytz (Swiss Federal Institute of Technology, Lausanne, Switzerland), F. Borsa (Istituto di Fisica dell'Università e Unità Gruppo, Pavia, Italy), and U. T. Höchli (RES Zurich, Switzerland), **Collective effects in a random-site electric dipole system KTaO_3** , *Physical Review B* **27**, No. 1, 89–101 (1983).

P. R. Varker, J. R. Kirtley, and J. C. Tsang (RES Yorktown Hts., NY), **The Dependence of Inelastic Electron Tunneling on Junction Roughness**, *Solid State Communications* **45**, No. 5, 417–420 (1983).

A. W. Vinal (CPD Raleigh, NC) and N. A. Masnari (North Carolina State University, Raleigh), **Response to "Comment on 'Magnetic Transistor Behavior Explained by Modulation of Emitter Injection, Not Carrier Deflection,'"** *IEEE Electron Device Letters* **3**, No. 12, 396–397 (1982).

W

T. W. Williams and K. P. Parker (IPD Boulder, CO), **Design for Testability—A Survey**, *Proceedings of the IEEE* **71**, No. 1, 98–112 (1983).

R. A. Wirtz (Clarkson College of Technology, Potsdam, NY) and R. J. Stutzman (GTD Endicott, NY), **Experiments on Free Convection Between Vertical Plates with Symmetric Heating**, *Journal of Heat Transfer* **104**, No. 3, 501–507 (1982).

D. J. Wolford (RES Yorktown Hts., NY), J. A. Reimer (University of California, Berkeley), and B. A. Scott (RES Yorktown Hts., NY), **Efficient visible photoluminescence in the binary $\alpha\text{-Si:H}_x$ alloy system**, *Applied Physics Letters* **42**, No. 4, 369–371 (1983).

P. Wong (The University of Chicago, IL), P. M. Horn (RES Yorktown Hts., NY), R. J. Birgeneau (Massachusetts Institute of Technology, Cambridge, MA), and G. Shirane (Brookhaven National Laboratory, Upton, NY), **$\text{Fe}_{1-x}\text{CO}_x\text{Cl}_2$: Competing anisotropies and random molecular fields**, *Physical Review B* **27**, No. 1, 428–447 (1983).

R. K. S. Wong (University of Texas, Galveston) and R. D. Traub (RES Yorktown Hts., NY), **Synchronized Burst Discharge in Disin-**

hibited Hippocampal Slice. I. Initiation in $\text{Ca}_2\text{-Ca}_3$ Region, *Journal of Neurophysiology* **49**, No. 2, 442–458 (1983).

Y

D. M. Yeager (DSD Poughkeepsie, NY), **A computer simulation of acoustical image reconstruction**, *Journal of the Acoustical Society of America* **73**, No. 1, 359–362 (1983).

Z

E. Zanazzi, M. Maglietta, U. Bardi (University of Florence, Italy), F. Jona (State University of New York, Stony Brook), and P. M. Marcus (RES Yorktown Hts., NY), **Test of structural models of $\text{Ag}[110]1\times 2\text{-O}$ by LEED intensity analysis**, *Journal of Vacuum Science and Technology A* **1**, No. 1, 7–11 (1983).

W. Zapka, M. D. Levenson, F. M. Schellenberg, A. C. Tam, and G. C. Bjorklund (RES San Jose, CA), **Continuous-wave Doppler-free two-photon frequency-modulation spectroscopy in Rb vapor**, *Optics Letters* **8**, No. 1, 27–29 (1983).

W. Zapka, P. Pokrowski, F. M. Schellenberg, and G. C. Bjorklund (RES San Jose, CA), **Measurement of Time Dependent Optical Gain Using Frequency Modulation Spectroscopy**, *Optics Communications* **44**, No. 2, 117–120 (1982).

P. Ziemann and E. Kay (RES San Jose, CA), **Model of bias sputtering in a dc-triode configuration applied to the production of Pd films**, *Journal of Vacuum Science and Technology* **21**, No. 3, 828–832 (1982).

P. Ziemann, K. Koehler (University of Karlsruhe, Federal Republic of Germany), J. W. Coburn, and E. Kay (RES San Jose, CA), **Plasma potentials in supported discharges and their influence on the purity of sputter-deposited films**, *Journal of Vacuum Science and Technology B* **1**, No. 1, 31–34 (1983).

A. Ziv (IBM Israel, Haifa Scientific Center), **Relative Distance—An Error Measure in Round-Off Error Analysis**, *Mathematics of Computation* **39**, No. 160, 563–569 (1982).